Alan C. Lloyd, Ph.D.
Agency Secretary

State Water Resources Control Board

Division of Water Quality - Office of Tank Tester Licensing
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Arnold Schwarzenegger
Governor

NOTICE OF PUBLIC MEETING OF A COMMITTEE
APPOINTED BY THE STATE WATER RESOURCES CONTROL BOARD,
DIVISION OF WATER QUALITY
TO CONSIDER A PROPOSED COURSE OF STUDY
APPLICABLE TO TANK TESTING
Wednesday, March 1, 2006 10:00 a.m.
Sierra Hearing Room/Cal/EPA Building
1001 I Street, Sacramento

A Committee appointed by the Division of Water Quality (Division) will meet pursuant to California Health and Safety Code section 25284.4(c)(1)(B) and Title 23 California Code of Regulations Section 2731(d) to consider whether to recommend to the Division approval of a course of study applicable to tank testing. The Committee comprises the following individuals:

1. Joe Zarnoch –Environmental Scientist – State Water Resources Control Board (State Water Board)
2. Scott Bacon – Sanitary Engineering Technician, State Water Board
3. John White – City of Anaheim Fire Department

Copies of the proposed course of study to be considered by the Committee may be downloaded from the following Website, **www.waterboards.ca.gov/ust** . Please note that portions of the proposed study are not publicly available because they are exempt from disclosure under the California Public Records Act, Government Code section 6254(g).

While members of the public may address the Committee orally, the Committee encourages written comments. Written comments on this agenda item should be addressed and submitted to Leslie Graves by email at **lgraves@waterboards.ca.gov,** by fax to (916) 341-5808 or by mail addressed to Leslie Graves, Chief, Office of Tank Tester Licensing, State Water Resources Control Board, P.O. Box 2231, Sacramento, CA 95812. In order to receive consideration by the Committee, comments should be received not later than Monday, February 27, 2006 by 5pm.

All visitors are required to sign in and receive a badge prior to attending this meeting. Valid picture identification may be required due to the security level so please allow up to 15 minutes for this process. Persons requiring special accommodations or for more information please contact Ms. Leslie Graves at 916-341-5810.

The Agenda for this meeting begins on the next page.

AGENDA

COMMITTEE TO CONSIDER
PROPOSED COURSE OF STUDY
APPLICABLE TO TANK TESTING
(Cal. Health and Safety Code section 25284.4(c)(1)(B);
Title 23 Cal. Code of Regulations section 2731(d))

10:00 a.m. March 1, 2006
Sierra Hearing Room/Cal/EPA Building
1001 I Street, Second Floor
Sacramento, CA 95814

I. Introduction of Committee Members – Review Agenda

II. Consideration of Proposed Course of Study. Pursuant to Cal. Health and Safety Code section 25284.4(c)(1)(B) and Title 23 California Code of Regulations section 2731(d), the Committee will consider whether to recommend to the Division of Water Quality approval of a proposed course of study applicable to tank testing licensure submitted by Praxair.

III. Closed Session. The Committee may adjourn at any time during the meeting to consider the examination component of the proposed course of study [Authority: Cal. Government Code section 11126(c)(1)].

IV. Adjourn

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California Tank Testers Course of Study Workshop

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January 2006

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CA Tank Testers Course of Study

Executive Summary:

The included material has been developed to be utilized as an approved course of study for the California underground tank tester licensing program. CCR, Title 23, Division 3, Chapter 17, Article 4, 2760 subset (a), requires that prior to application to become a licensed tank tester, an applicant shall…"*have completed a minimum of either one year of verifiable qualifying experience testing at least 50 underground storage tanks or have successfully completed both 6 months of qualifying experience during which at least 50 underground storage tanks were tested and an approved course of study…*".

This course of study includes training over two consecutive days. The course instructional material has been compiled by Praxair directly from the Water Resource Control Board Tank Tester Licensing Study Guide Reference list, the CA Health and Safety Code, and the California Code of Regulations Title 23.

A written examination will be given at the completion of the second day of training. Participants must pass the examination to receive credit for the course of study.

This program contains two options. Option 1 requires that the applicant have 23% more tank integrity tests performed than Option 2. The tank integrity tests shall have been performed under the direct supervision of a CA licensed tank tester.

Option 2 requires that the applicant possess a current ICC CA Service Technician Certification. The ICC certification will replace the experience obtained during the additional 23% tank integrity tests required in Option 1.

Upon successful application and completion of this approved course of study, the applicant will be issued a certification that will enable the individual to apply to the Water Resources Control Board for examination and possible licensure.

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Course of Study for CA Tank Testers Licensing Program

1. Overview:

a) This is a course of study to be approved by the CA Water Resources Control Board. By design, this course of study and completion of six months experience testing at least 50 underground storage tanks while under the direct and personal supervision of a licensed tank tester, will allow a tank tester to apply to the Water Resources Control Board for licensure.

2. Course Contact, Advertisement and Information:

a) Course information and contact information:

i) Praxair Services Inc.

Praxair Education Division

3755 N. Business Center Dr.

Tucson, AZ 85705

(520) 888-9400 Ext. 232

b) The course will be open to any individual of the public, who meets the applicant criteria. The course availability and information will be published on the following public websites.

i) Course information will be placed on:

a) Praxair website: (www.tracerresearch.com)

b) Shirley Environmental website: (www.shirleyenvironmental.com)

c) CGRS website: (www.cgrs.com)

c) Praxair Services will distribute an informational flyer to the testing companies of all CA licensed tank testers, listed at the Water Resources Control Board website.

3. Qualifications for attending class:

a) The experience required for application to this course of study, varies with each option.

b) There will be 2 separate options available.

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c) Before an Applicant may enter the course, the completed application must be received and the Applicant must meet the acceptance criteria established for this course of study.

d) **Option 1**

i) Applicant shall have at least 6 months of experience as a tank integrity tester performing tank integrity tests. "Tank Integrity test" – as defined in section 2611 of Chapter 16 of the CA code of Regulations.

ii) Applicant shall submit a training certification issued from the Manufacturer of the Testing Method Utilized. The manufacturer's certification must have been obtained within the last 36 months.

iii) A minimum of 65 tank integrity tests shall have been performed under the direct and personal supervision of a licensed CA Tank Tester.

e) **Option 2**

i) Applicant shall have at least 6 months of experience as a tank integrity tester performing tank integrity tests. "Tank Integrity test" – as defined in section 2611 of Chapter 16 of the CA code of Regulations.

ii) Applicant shall submit a training certification issued from the Manufacturer of the Testing Method Utilized. The manufacturer's certification must have been obtained within the last 36 months.

iii) A minimum of 50 tank integrity tests shall have been performed under the direct and personal supervision of a licensed CA Tank Tester

iv) Applicant must submit a current ICC CA Service Technician Certification.

4. Application and Experience Form:

a) The Application and Experience form will be available at the websites and from the Praxair Education Department. Upon completion by the applicant, the form shall be sent to the Praxair Education Department.

i) The experience form must be completed by a Declarant. The Declarant must be a CA tank tester who is able to verify the applicant's experience.

ii) The experience form must include the following:

a) License number and signature of CA tank tester supervising integrity test

b) Date of each test

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c) Location of each test

d) Name of each site

e) Testing Method Utilized

f) Number of tank integrity tests

5. Course Material:

a) Courses will be given every quarter or as the current demand requires.

i) The course material will be given at the following locations:

a) 1 course will be given in Sacramento, CA every calendar year.

b) 1 course will be given in Los Angeles, CA every calendar year.

c) 2 courses will be given at the Praxair training facility in Tucson, AZ every calendar year.

b) The Length of Course Training:

i) The course material will be presented by the trainer during two consecutive days.

a) The classes will be given for 8-10 hours a day

c) Course Instructional Information – The following material will be covered by the course of study:

i) Water Resources Control Board Tank Tester Licensing Study Guide Reference List

a) National Fire Protection Association 329 – "Underground Leakage of Flammable and Combustible Liquids", 1987 Edition, NTIS Pub #PB86-137155

b) California Code of Regulations, Title 23, "Waters", Office of Procurement

c) Underground Tank Leak Detection Methods: A State-of-the-Art Review, EPA/600/2-86/001, January 1986, NTIS Pub #PB86-137155

d) Underground Storage Systems, Leak Detection and Monitoring, by Todd G. Schwendeman and H. Kendall Wilcox, 1987, Lewis Publishers, Inc.

e) "Underground Storage Tanks; Technical Requirement and State Program Approval", in 40CFT, Part 280, September 23, 1988, U.S. Environmental Protection Agency, Office of Underground Storage Tanks, P.O. Box 6044, Rockville MD 20850

f) California Code of Regulations, Title 8, "Industrial Relations", Chapter 4, "Division of Industrial Safety" Subchapter 7, "General Industrial Safety Orders", Office of Procurement

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g) Causes of Release from UST Systems, Final Report to U.S. EPA/OUST, EPA Contract: 68-01-7053, September 30. 1987, U.S. Environmental Protection Agency, Office of Underground Storage Tanks, P.O. Box 6044 Rockville, MD 20850

h) "Installation of Underground Petroleum Storage Systems", API 1615, November 1987, American Petroleum Institute

ii) Additional References

a) California Health and Safety Code, Chapter 6.7, Underground Storage of Hazardous Substances

b) California Code of Regulations, Title 23, Division 3, Chapter 16, Underground Storage Tank Regulations

d) 7 total definition quizzes will be given and reviewed

e) A written examination will be given at the completion of the second day of training.

i) The Exam will have a total of 105 multiple choice questions

ii) The Exam will be a closed book.

iii) Participants will be given 3 hours to complete the exam. The exam will be monitored by a PSI instructor.

iv) Participants must obtain 75% of the total answers correct to pass

6. Upon successful completion of the course, the participant will be given a certificate by Praxair Services, Inc. Education division. This certificate may be submitted to the Water Resources Control Board upon application to take the licensure exam.

7. Fees

a) Application Fee - $50

b) Course and Examination Fee - $600

i) Any fees the Water Resources Control Board charges for application, testing or licensing of tank testers are not included.

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Course of Study Syllabus

1) Module 1 - Regulated Substances
   a) Defined in section 101(14) of CERCLA
   b) Class 1 liquid – Definition
      i) Flammability
      ii) Flashpoint
      iii) Vapor pressure
   c) Governing Bodies
      i) EPA
      ii) NFPA
      iii) OSHA
      iv) CA Water Resources Control Board
   d) NFPA Requirements
      i) Records
      ii) Leak detection Program
   e) UST – What is a UST
   f) UST System – What is a UST System
   g) Regulatory Requirements:
      i) New Tank - Definition
      ii) Existing Tank - Definition
      iii) Notification of Testing
      iv) Forward of Results
      v) Suspected Release
      vi) Detection Methods – What do they need to be able to do
         (1) Standards
      vii) 3rd party certifications
      viii) Manufacturer's certifications
   h) Monitoring Requirements
      i) Written Procedure
         (1) Frequency
         (2) Methods
         (3) Locations
         (4) Names and Titles of responsible
         (5) Maintenance Schedule and reporting format

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(6) Description of training

i) Regulatory Release Requirements
  i) Clean-up
    (1) EPA recommended items
  ii) Reporting
    (1) Who, When, and What
    (2) Operators Monitoring Reports
    (3) Recordable Release Records
      (a) Quantities, types, concentrations
      (b) Actions taken to control
      (c) Methods and location of disposal
      (d) Repair and future releases
      (e) Reactivate monitoring
    (4) Record review
  iii) Report
    (1) verbal
      (a) timeframe to submit
    (2) written
      (a) timeframe to submit
      (b) content of written report

j) Tank Tester Regulations
  i) Written report
    (1) Content
    (2) Retention

k) UST regulations
  i) Exemptions
  ii) Temporary and permanent closure
  iii) Red Tag

2) Module 2 – UST system and Related Equipment
  a) Included components
  b) Under dispenser containment
    i) Requirement
  c) Poppet valves
  d) P/V valves
  e) Shear valves
  f) Common cause of leaks

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g) Existing vs. new tanks
   i) Definitions
   ii) Components
h) Piping Layout
   i) Rigid piping
   ii) Flexible piping
i) Tank Materials
   i) Steel
      (1) Cathodically protected
   ii) Corrosion resistant material
   iii) Steel clad
j) Double wall vs. single wall
   i) Secondary containment testing
k) Classification of UST
l) Cathodic Protection
   i) Method to protect/preserve
   ii) Electrochemical cell
   iii) Impressed current
      (1) Diagram
      (2) Rectifier testing requirements
   iv) Galvanic anode system
      (1) Galvanic scale
      (2) Diagram
   v) Testing and monitoring requirements
m) Age relationship to tank failure
n) Non-corrosive Materials
   i) FRP
      (1) Handling
      (2) Compatibility
   ii) Steel Clad
o) Remote/Pressure Pumping System
   i) Submerged transfer pump
   ii) Pressure
      (1) Normal operating
      (2) Positive
      (3) When no product is being dispensed

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iii) Ability to differentiate normal operation and leakage
iv) Secondary containment regulations
v) % of fuel sector
vi) # of dispensers per pump
vii) Diagram

p) PLLD's
i) Location
ii) Function
iii) Ability
iv) Operation
v) Detectable leak rate
vi) Single wall vs. double wall regulations
vii) Fine / jail time for tampering or disconnecting

q) Suction systems
i) Safe, European, and Conventional
ii) Negative pressure
iii) How to detect leakage
(1) Failure indications
iv) % of motor fuel sector
v) Maximum lift
vi) components
vii) diagram
viii) monitoring

r) Comparison exercise – pressure vs. suction pumps
i) positive vs. negative delivery
ii) pump wear
iii) vapor lock
iv) lift
v) release potential
vi) piping design layout
vii) release prevention

s) Product piping and % of releases

t) Piping and fittings
i) Types
(1) Cathodically protected
(2) Galvanizing

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(3) Coated or wrapped
(4) FRP
(5) Single and Double wall

u) Comparison Exercise Metal piping vs. FRP piping systems
i) Corrosive
ii) Weight
iii) Crushing failure
iv) Joint failure
v) Frost heave failure
vi) Puncture resistance
vii) Skills required for assembly
viii) Fabrication tools
ix) Temperature and fabrication

v) Marine Piping
i) Accordance to Article 146
ii) Stray currents and isolation
iii) Valves and shut off

w) Inventory Monitoring
i) Line Leak Detectors
(1) Function
(2) Where installed
(3) Response
(4) PLLD and power to pump

3) Module 3 - Vapor Recovery Systems
a) Function
b) Stage 1 and Stage 2
c) Balanced and assisted systems
d) Slope of VR line
i) Lowest point in the system
ii) Liquid collection points
e) Stage 1 - definition
i) Diagram
ii) Two Point vs. single point
iii) Co-axial
f) Stage 2 - definition
i) Diagram

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g) Balance System
   i) Usage
   ii) Stage 1
      (1) Designs
         (a) 2 point – description
h) Assistance System
   i) Definition
   ii) Indications
i) Spill Buckets
   i) Size requirements
   ii) Purpose
   iii) Disposal of test liquids
   iv) Testing requirements
j) Testing of VR System
   i) Pressure decay
   ii) Dynamic backflow
   iii) A/L
k) Overfill Problems
   i) Prevention of
      (1) Ball float check valves
         (a) Alarm levels
      (2) Positive shut off
         (a) Alarm levels
      (3) Alarm systems
         (a) Alarm levels
   ii) Exception to protection rule
l) Detection Monitoring Techniques
   i) Inventory monitoring
   ii) External storage system monitoring
   iii) Internal storage system release detection
   iv) Piping release monitoring
m) Inventory Monitoring
   i) Data requirements
      (1) Identification #
      (2) Type of substances
      (3) Receipts

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(4) Sales
(5) Daily measurement
(6) Recording requirements

ii) Factors Affecting inventory monitoring
(1) Temperature effects
(a) Temperature correction factor
(b) variations
(2) Meter accuracy effects
(3) Calibration of meters
(a) How and when
(4) Evaporation
(a) % of loss
(5) Gauging Accuracy
(a) Gauging stick
(i) Standard error
(b) Improve accuracy
(c) Calibration chart
(i) From whom
(ii) For what
(d) Diagram
(e) Tank geometry
(i) Actual vs. nominal specifications
(ii) Unique geometry
(iii)Systemic effect
(iv)Positive vs. negative effect

iii) Inventory Monitoring
(1) Manual reconciliation
(a) Define
(b) Static reconciliation
(c) Metered reconciliation
(d) Temperature-compensated reconciliation
(2) Statistical reconciliation
(a) Leak rate
(b) Testing interval
(c) Computer
(d) Isolation of trends

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(e) Operator judgment
(f) Causes of variations
(g) Inconclusive reports/suspected release and integrity testing
(3) Automatic tank gauging
(a) define
(b) Leak rate
(c) Testing parameters and interval
(d) Physical characteristics and material considerations
(4) Continuous monitoring
(a) Hydrostatic
(5) Testing regulation for monitoring methods
(a) Sensitivity
(b) Testing interval
iv) Piping monitoring
(1) Line leak detectors
(a) Testing interval
(b) Leak rate sensitivity
(c) Probability of detection and false alarm
(2) Suction piping
(a) Type and testing interval
(3) Secondary containment testing
(a) Testing parameters

4) Module 4 - Testing Methods
a) Precision Test
i) Definition and criteria
b) Tank integrity test
i) When performed
c) Product Piping
i) When performed
(1) Hydrostatic vs. pneumatic
(2) How often performed
ii) Inspection of piping
(1) Checking of underground piping
(a) What to look for
d) Hydrostatic Testing
i) How to perform

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ii) Pressure used
iii) Testing time required
iv) Pressure drop
(1) Possible causes

e) Suction Line Testing
i) Where to connect
ii) Indication of a leak in a suction system
(1) Indicators
(2) What to inspect first how to proceed

f) Volumetric vs. non-volumetric vs. in-tank monitors
i) Non-volumetric methods
(1) Definition
(2) Detection capabilities
(3) Leak rate
(4) Sensitivity
(5) Vs volumetric methods
(6) Detection Limits
(7) Acceptance
(8) Problems with
ii) In tank Monitors
(1) Data collection
(2) Use with SIR
iii) Non-volumetric test methods
(1) ELD
(a) Sensitivity
(b) Requirements
(c) Results
(d) Well proximity
iv) Volumetric Test Methods
(1) Definition
(2) Testing conditions
(3) Techniques
(a) Classical
(i) Definition
(ii) Surface to volume ratio
(iii)Sensitivity

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(iv) Experimental parameters
1. calibration
2. CE
3. volume
4. product level
5. temperature changes

(v) diagram

(vi) Level sensor calibration
1. scenario

(vii) Methods of product level measurement
1. ruler
2. laser interferometer
3. pressure transducer
4. bubble pressure
5. buoyancy
6. photometry

(b) Trend analysis
(i) Pressures
(ii) Design
(iii) Theory behind
(iv) diagrams

(c) Reference tubes
(i) Design
(ii) Faults

5) Module 5 - Testing Variables
a) Temperature Change
i) Importance of
ii) Effect on fuels
iii) Stabilization time
(1) Minimum
(2) Recommended
iv) causes of temperature change
v) Temperature fluctuations diagram
vi) Temperature effects
(1) Contraction and expansion
(2) Volume changes due to temp

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(a) CE
(b) Warm or cool fuel addition to a tank
(3) Stratification
(a) Definition
(b) Causes of
(c) Temperature Distribution - diagram
(d) Multiple thermisters
(e) Diagram of temperature stratification and Gradients
(f) Diagram of location of temperature sensors

b) Water Table effects
i) Hydrostatic head and surface tension forces
ii) Masking of leaks
(1) Evaluation of masking effect
(a) Product level vs. water level
(b) Pressure differences due to specific gravity
iii) Void sizes and flow rate
(1) pervious
iv) Compensation of during testing
v) Diagram of observation well as release detection techniques
vi) Water Ingress Test
(1) When to conduct
(2) How to perform

c) Tank Deformation
i) Cause of
ii) Effect on volume readings
iii) Factors contributing to
(1) Soil water content
(2) Non-homogenous properties of backfill
(3) Tank Construction material
(4) Tank Age
(5) Ground water forces
iv) Effects on FRP
v) Effects on Steel
vi) Tank Stabilization Time
vii) Adjacent tank and deformation
viii) Single wall vs. double wall

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ix) In relation to diameter
x) Diagram of steel tank deformation
xi) Diagram of behavior exhibited by the tank distortion

d) Vapor Pockets
i) Causes of
ii) Effects of
iii) Typical locations
(1) Diagram of typical locations
iv) Dealing with vapor pockets
(1) Removal
(a) Bleeder valves
(b) Manways
(c) Piping
(d) J-tubes
(2) Under-filling
(3) Examples diagram
v) Variables affecting vapor pockets
(1) Temperature effects on vapor pockets
(2) Atmospheric pressure changes
(3) Vapor leakage
(4) % of change in a liquid filled tank if not removed

e) Product evaporation
i) Effects of
ii) Typical conditions that cause evaporation
iii) Scenario and its effects

f) Piping leaks
i) Effects on testing

g) Tank Geometry
i) Actual and nominal manufacturers specifications
ii) Uniqueness of geometry
iii) Systemic effect on gauging
iv) Positive vs. negative effect

h) Wind
i) Pressure differentials
ii) Effect on accuracy
iii) Effects of waves

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i) Vibration
    i) Causes of
    ii) Effects of
    iii) Vs. free surface area
    iv) Rippling effect and accuracy
j) Noise
    i) Effects of
    ii) Powerful noises
    iii) Background noises
k) Equipment Accuracy
    i) Definition
l) Operator Error
    i) Effects of increased difficulty of test
    ii) Relationship to locating or missing leaks
m) Type of Product
    i) Effects of Physical properties
n) Power Variations
    i) 110V AC
    ii) How to decrease effect
o) Instrumentation Limitation
    i) Use outside its designated range
    ii) Calibration and standard references
p) Tank Inclination
    i) Volume change vs. a horizontal tank
    ii) Height to volume conversion factor
q) Atmospheric Pressure
    i) Effects of
    ii) Scenario
        (1) Vapor pockets vs. fuel
r) Condensation
s) Variables that effect volumetric testing
t) Variable that are non-influential
u) Variables that do not affect non-volumetric testing
v) Product Testing
    i) Effects of excessive pressures and Non-representative liquids

6) Module 6 - Volumetric Testing Variables

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a) Compensation of volume changes due to temperature changes
   i) Variables
      (1) Product volume
      (2) Temperature of volume
b) Product Volume
   i) Define
   ii) Measurement units
   iii) V_{tank}
   iv) Typical volumes of tank at fueling stations
c) Product Temperature
   i) Define
   ii) When measured
   iii) ΔTemp or ΔT
      (1) Calculation of total change in temperature during a volumetric test
      (2) 2 Scenarios of total change in Temp
      (3) Coefficient of Expansion (CE)
         (a) Definition of
         (b) CE for different liquids
   iv) Temperature effect on product
      (1) Increasing vs. decreasing temperatures
      (2) Testing parameters
         (a) volume
         (b) Change in temperature
         (c) CE
            (i) How to find CE of a liquid
   v) Calculation of Volume Change
      (1) $\Delta V_{Temp}=(V_{Tank})\ (CE)\ (\Delta T)$
      (2) 2 scenarios
d) Measuring Tank Product Level
   i) Schematic of graduated cylinder
   ii) Calculation of ΔV_{Level}
   iii) 2 Scenarios
   iv) ΔV_{Temp} vs. ΔV_{Level}
   v) ΔV_{Net} calculation
e) Volume changes in a tight tank vs. leaking tank
   i) Calculation of 5 scenarios

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ii) Schematic of volume effects of temperature and level as related to leak rate
f) Classic Volumetric Testing
i) Calculation of 3 scenarios
g) Diagram of the temperature effects vs. volume changes
h) Scenario – warmer product added to cooler product in a tank
7) Module 7 - Safety
a) fire
i) Fire triangle
ii) Types of fires
(1) Class A
(2) Class B
(3) Class C
(4) Class D
iii) Extinguishing materials used for Classes of fires
iv) Types of extinguishment
(1) Aqueous film forming foam
(2) Automatic fire detection devices
(3) Carbon dioxide
(4) Dry chemical
(5) Dry powder
(6) Portable fire extinguishers
v) Placement of extinguishers
b) Flashpoint
c) Flammability
i) Control of
(1) Inert systems
(a) Dry ice
(b) Nitrogen
(c) Purging
(2) Grounding
(3) bonding
d) Gasoline
i) Characteristics and dangers
ii) Flashpoint
iii) Ignition point
iv) Vapors vs. air

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e) Waste Oil
   i) Hazardous components
f) Confined Space Operations
   i) Characteristics of a confined space
      (1) Size/configuration
      (2) Access and egress
      (3) Design in relation to occupancy
   ii) Entry into a confine space
   iii) Standby employee
   iv) Safety belt
      (1) Suspension requirements
   v) Hoist
   vi) CPR training
g) Design, construction and capacity of containers
   i) Container types
   ii) Flammable vs. combustible liquid regulations
   iii) Scenario
h) Emergency Power Cut-off
   i) Identification of
   ii) Accessibility of
   iii) Location of
i) Toxic Substance Exposure
   i) Inhalation
   ii) Absorption
   iii) Ingestion
   iv) Injection
   v) Rate of exposure
j) Oxygen
   i) Safe levels
   ii) Depletion and physiological effects
k) PPE
   i) Types
   ii) Limitations
   iii) Safety barriers
l) Combustible gas detector
   i) LEL

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CA Tank Testers Course of Study Workshop

Instructor:
Alan Harris
Education Manager
Praxair Services Inc.
3755 N. Business Center Dr.
Tucson, AZ 85705
Office 520.545.0232
Cell 520.390.2114
Fax 520.293.1306

CA Tank Testers License 00-1619
ICC CA Service Technician Certification 5258705-UT
ICC Tank Tightness Certification 5258705-U3
NACE Service Technician 186798-00
Employed since July 1999

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CA Tank Testers Course of Study Workshop

Instructor:
Bryan Quinley
Education Department
Praxair Services Inc.
3755 N. Business Center Dr.
Tucson, AZ 85705
Office 520.888-9400
Cell 520.370-1959
Fax 520.293.1306

CA Tank Testers License 03-1637
ICC CA Service Technician Certification
ICC UST Tank Tightness Certification
Employed since April 1996

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CA Tank Testers Course of Study Workshop

Instructor:
Robert Caumissar
Education Department
Praxair Services Inc.
3755 N. Business Center Dr.
Tucson, AZ 85705
Office 520.888.9400
Cell 520.370.2765
Fax 520.293.1306

CA Tank Testers License 03-1665
ICC CA Service Technician Certification
ICC UST Tank Tightness Certification
Employed since Sept. 2003

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APPLICATION AND EXPERIENCE FORM
COURSE OF STUDY FOR CA TANK TESTERS LICENSING

This application is to be used to apply for the Praxair Services Inc. approved course of study for the CA Water Resources Control Board - Tank Testers License Program. This application should be sent to Praxair Services Inc., Attn: Education Department, at the above address.

Please supply a check or money order payable to Praxair Services Inc.

Application Review fee	-	$50
Classroom	-	$600

APPLICANT INFORMATION:

Last, First and Middle Initial

_____

Address including City, State and Zip

_____

_____

Telephone _____ E-mail _____

Employer Information:

Employer Name

_____

Employer Address including City, State and Zip

_____

_____

Telephone _____ Fax _____ Contact _____

Praxair Services, Inc.
3755 North Business Center Drive
Tucson, Arizona 85705
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Fax 520.293.1306

Testing Equipment Information: Certifications must be enclosed

TANK TESTING EQUIPMENT UTILIZED – Please list all equipment that applies.

Manufacturer(s)

_____

Model Numbers or Names

_____

Date(s) of Training

_____

LINE TESTING EQUIPMENT – Please list all equipment that applies.

Manufacturer(s)

_____

Model Numbers or Names

_____

Date(s) of Training

_____

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Documentation of Experience:

You must attach and submit a Declarant Information Form and an Integrity Test Information Form for each integrity test performed. You may have more than one Integrity Test sheet for each Declarant Information sheet.

Declarant Information:

Last, First and Middle Initial

_____

Address including City, State and Zip

_____

_____

Telephone

_____

E-mail

_____

CA State Tank Testers License Number:

_____

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INTEGRITY TEST INFORMATION:

"Tank Integrity test" – as defined in section 2611 of Chapter 16 of the CA code of Regulations

Date of the integrity test

_____

Site Name

_____

Site Address

_____

_____

Testing Method Utilized

_____

Number of systems tested at this site

_____

License number of CA tank tester who supervised the integrity tests

_____

Signature of CA tank tester

_____

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CA Tank Testers Course of Study Certification of Completion

Praxair Services, Inc. Education Department

***Certifies*:** **John Doe**

Certification Date: ***2/16/2006***

The individual listed above has successfully completed the Praxair Services, Inc. Education Department training and/or requirements as outlined in the course of study approved by the CA Water Resources Control Board. This certification alone is not a license to conduct tank tests. This certification must be submitted to the CA Water Resources Control Board as part of the applicant's application for a CA UST Tank Testers License.

Certified By,

Praxair Services, Inc
Education Division

Praxair Services, Inc.
3755 North Business Center Drive
Tucson, Arizona 85705
Phone 520.888.9400
Fax 520.293.1306

CA Tank Testers Licensing and Reference Material

Table of Contents

SWRCB Tank Tester Licensing References

Praxair Services, Inc.
3755 North Business Center Drive
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8. **Reference 5 –** "Underground Storage Tanks; Technical Requirement and State Program Approval", in 40CFT, Part 280, September 23, 1988, U.S. Environmental Protection Agency, Office of Underground Storage Tanks, P.O. Box 6044, Rockville MD 20850

9. **Reference 6 –** California Code of Regulations, Title 8, "Industrial Relations", Chapter 4, "Division of Industrial Safety" Subchapter 7, "General Industrial Safety Orders", Office of Procurement

10. **Reference 7 –** Causes of Release from UST Systems, Final Report to U.S. EPA/OUST, EPA Contract: 68-01-7053, September 30. 1987, U.S. Environmental Protection Agency, Office of Underground Storage Tanks, P.O. Box 6044 Rockville, MD 20850

11. **Reference 8 –** "Installation of Underground Petroleum Storage Systems", API 1615, November 1987, American Petroleum Institute

Additional References

12. California Health and Safety Code, Chapter 6.7, Underground Storage of Hazardous Substances

13. California Code of Regulations, Title 23, Division 3, Chapter 16, Underground Storage Tank Regulations

January 2006